

# MEDICAL PROCEEDINGS

## MEDIESE BYDRAES

A South African Journal for the  
Advancement of Medical Science

'n Suid-Afrikaanse Tydskrif vir die  
Bevordering van die Geneeskunde

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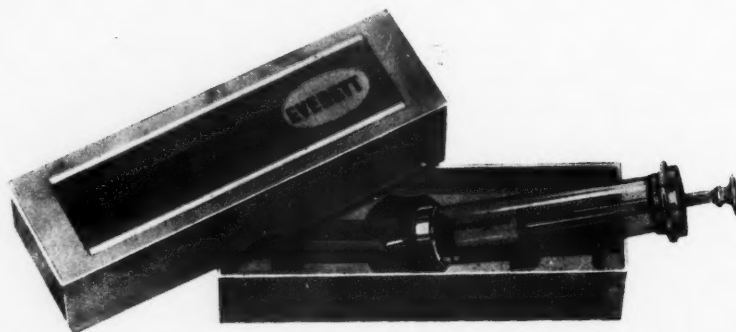
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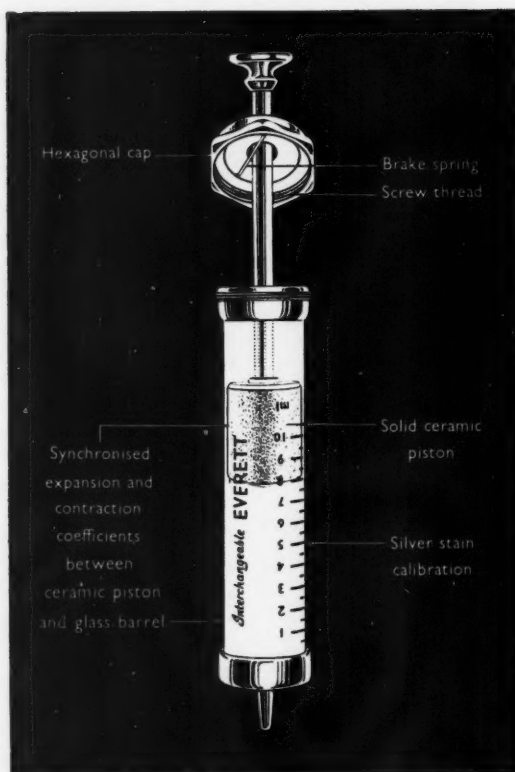
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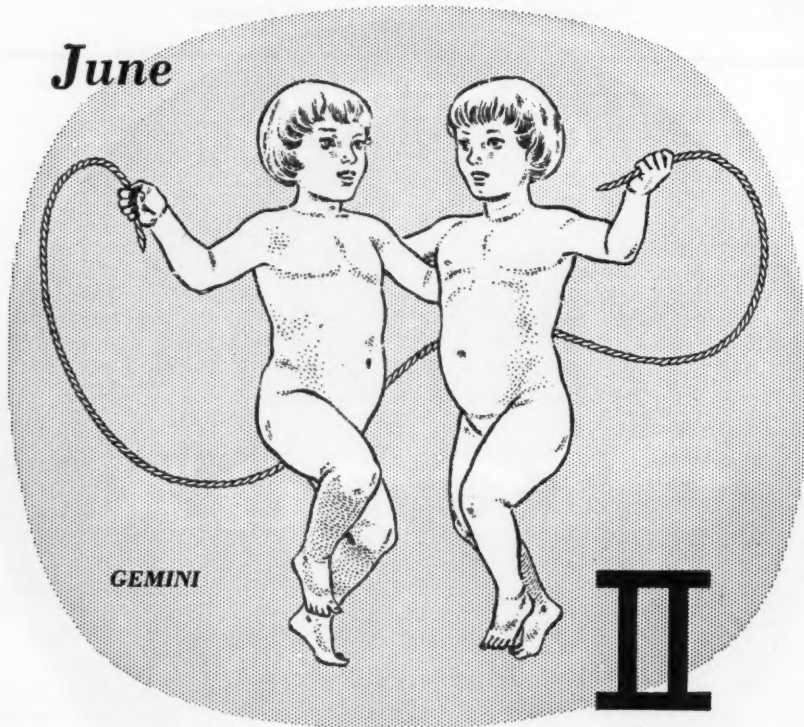


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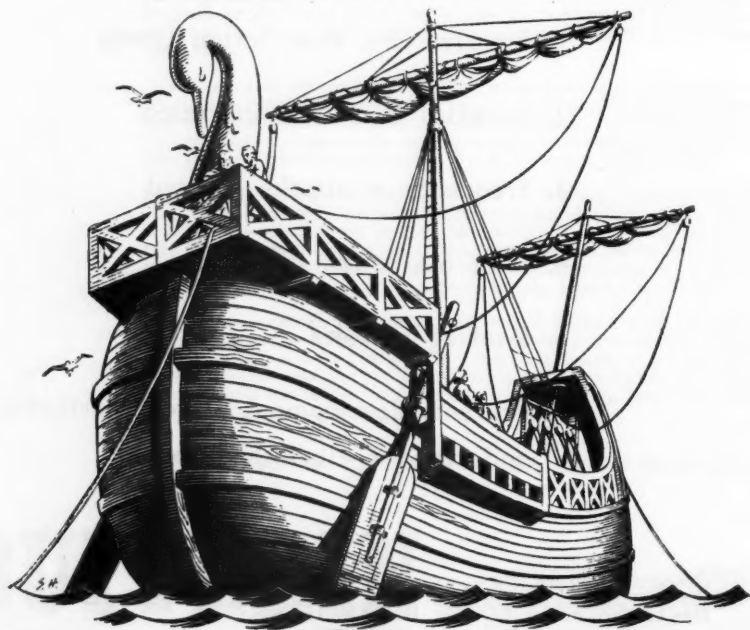
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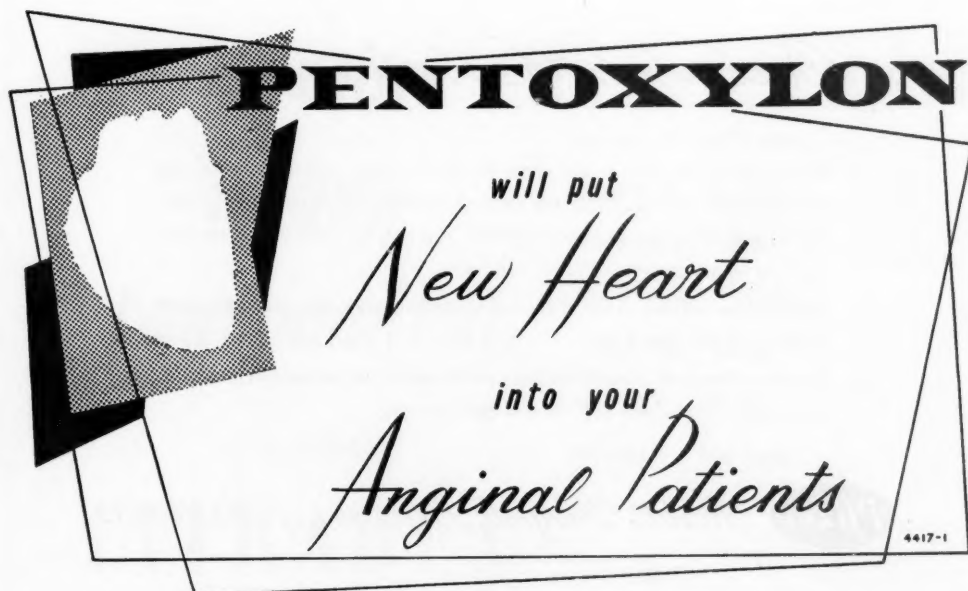
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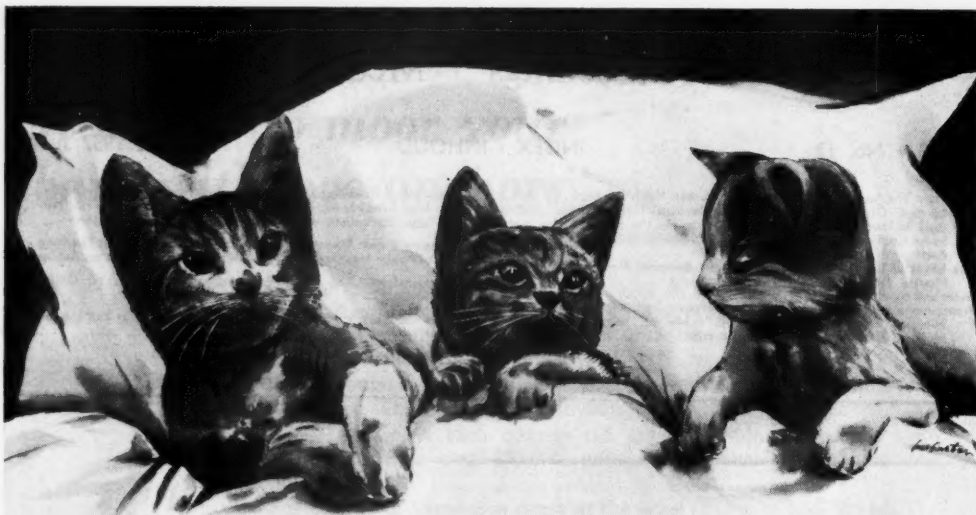
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### EDITORIAL · REDAKSIONEEL

#### THE AUTHORITARIAN FATE OF THE DURBAN MEDICAL SCHOOL

*A Further Report on the Government's Intention to Remove the Faculty of Medicine from the University of Natal* has recently been issued by Prof. I. Gordon, Dean of the Faculty of Medicine of the University of Natal.<sup>1</sup> This *Further Report* is supplementary to the *First Report* published on 4 March 1957 and documents the facts of the situation up to the present. It sets out in detail the negotiations with the authorities and makes it clear once again why the Council and the Senate of the University of Natal have condemned the principles enshrined also in the revised *Separate University Education Bill*.

The re-iterated insistence of the Government on the removal of the Durban Medical School from a true University environment has met with disapproval and opposition from the organized medical profession in this country. Our statutory body, the South African Medical and Dental Council (which was not consulted in the matter) has also uttered grave warnings to the Minister concerned<sup>2</sup> and members of the deputation of the Medical Council which waited upon the Minister (e.g. Prof. F. D. du T. van Zijl, Dean of the Faculty of Medicine of the University of Stellenbosch) definitely expressed the view to the Minister that

#### DIE OUTORITÊRE LOT VAN DIE DURBANSE MEDIESE SKOOL

*A Further Report on the Government's Intention to Remove the Faculty of Medicine from the University of Natal* is onlangs gepubliseer deur prof. I. Gordon, dekaan van die Fakulteit van Geneeskunde aan die Universiteit van Natal. Hierdie verdere verslag dien as aanvulling van die Eerste Verslag wat op 4 Maart 1957 gepubliseer is, en gee 'n uiteensetting van die feite van die posisie tot op hede. Dit bevat 'n breedvoerige verslag oor die onderhandelings met die owerheid, en verduidelik weer eens waarom die beginsels wat ten grondslag lê ook van die gewysigde *Afsonderlike Universiteitsopvoedingswetontwerp* deur die Raad en die Senaat van die Universiteit van Natal afgekeur is.

Die herhaalde aandrang van die Regering op die verwydering van die Durbanse Mediese Skool uit 'n suiwer universiteitsomgewing is afgekeur en word geopponeer deur die georganiseerde mediese professie in hierdie land. Ons statutêre liggaam, die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad (wat nie oor die aangeleentheid geraadpleeg is nie) het ook 'n ernstige waarskuwing tot die betrokke Minister gerig,<sup>2</sup> en lede van die afvaardiging van die Mediese Raad wat hul opwagting by die Minister gemaak het (o.a.

1. *Further Report on the Government's Intention to Remove the Faculty of Medicine from the University of Natal*, 4 May 1957.  
2. This Journal, 30 March 1957, p. 163.

1. *Further Report on the Government's Intention to Remove the Faculty of Medicine from the University of Natal*, 4 Mei 1957.  
2. Hierdie Tydskrif, 30 Maart 1957, bl. 163.



'it was not desirable for teachers of medicine to become public servants'.<sup>3</sup>

We can therefore readily understand and we are sure their colleagues will support the position taken by the staff of the Durban Medical School 'not to become teachers of medicine as members of a public service appointed, controlled and disciplined by a State Department in a so-called University College'.<sup>4</sup>

The functions of a University are to teach and study the arts, the sciences and the philosophies in an environment which permits free and uninhibited inquiry and the study of medicine cannot be divorced from this need. Direct political control of any institution of higher learning must necessarily be fatal to the whole concept of University education. No University can truly carry out its function as the custodian of the standards of scholarship and knowledge in such a climate. Indeed, the whole history of university institutions reflects the advance of science and civilization through emancipation from the influence of Church and State.

Although he spoke some three centuries ago, the words of Sir Thomas Browne take on a special meaning for us in this country to-day. In his *Pseudodoxia Epidemica* he wrote:

'But the mortallest enemy unto knowledge, and that which hath done the greatest execution upon truth, hath been a peremptory adhesion unto authority; . . . Now hereby methinks we manifestly delude ourselves, and widely walk out of the track of truth'.

3. *Further Report*, p. 13.

4. *Further Report*, Preface, p. 3.

(See also p. 280)

prof. F. D. du Toit van Zijl, dekaan van die Fakulteit van Geneeskunde aan die Universiteit van Stellenbosch) het baie definitief aan die Minister gesê dat dit nie raadsaam vir dosente in die geneeskunde is om staatsampnare te word nie.<sup>3</sup>

Ons begryp dus maklik, en ons is seker hul kollegas sal steun verleen aan die posisie wat ingeneem is deur die personeel van die Durbanse Mediese Skool, nl. 'dat hulle nie dosente in die geneeskunde wil word as lede van 'n staatsdiens wat aangestel, gekontroleer en gedissiplineer word deur 'n staatsdepartement in 'n sogenaamde universiteitskollege nie'.<sup>4</sup>

Die funksies van 'n universiteit is om lettere, die wetenskap en filosofie te doseer en te bestudeer in 'n omgewing wat vrye en ongedwonge navorsing in die hand werk, en die bestudering van geneeskunde kan nie van hierdie behoefte geskei word nie. Regstreekse politieke beheer oor enige inrigting vir hoër onderwys moet noodwendig 'n noodlottige effek op die hele begrip van universiteitsopvoeding hê. In sulke omstandighede kan geen universiteit uitvoering gee aan sy funksie as beskermheer van die standaard van geleerdheid en kennis nie. Trouens, die hele geskiedenis van universiteitsinstellings bewys hoeveel vordering daar op die gebied van die wetenskap en die beskawing gemaak is nadat die invloed van Kerk en Staat afgewerp is.

Hoewel hy byna drie eeue gelede gepraat het, is die woorde van sir Thomas Browne nog van besondere betekenis vir ons in hierdie land vandag. In sy *Pseudodoxia Epidemica* het hy geskryf:

'Maar die dodelikste vyand van kennis, en die een wat die grootste aanslag op waarheid doen, is hardnekkige verkleefdheid aan gesag; . . . nou, hierdeur, meen ek, laat ons onself duidelik mislei, en wyk ons ver van die pad van waarheid af'.

3. *Further Report*, bl. 13.

4. *Further Report*, Voorwoord, bl. 3.

(Kyk ook op bl. 280)

## THE ROLE OF UNDERNUTRITION AND MALNUTRITION IN THE ETIOLOGY OF SOME COMMON DISEASES\*

J. J. THERON, M.Sc., M.B., Ch.B.

and

W. A. ODENDAAL, D.Sc.

National Nutrition Research Institute, Council for Scientific and Industrial Research, Pretoria

A nutritional deficiency disease can arise in one of two ways, viz.:

(a) Through deficiency of one or more essential nutrients in the diet (primary deficiency); or

(b) Through various environmental conditions and bodily states which interfere with the intake, absorption or utilization of essen-

tial nutrients, or which increase the requirement or cause destruction or abnormal excretion of these nutrients, although the diet in itself may be adequate in terms of accepted standards (secondary or conditioned deficiency).

Good health and efficiency depend upon food adjusted to meet the needs of the body throughout the whole life span. Life begins at the fertilization of the ovum, and the developing fertilized ovum draws its nutrients from the mother. The all-or-none law, i.e. the old

\* This paper is submitted for publication by permission of the Council for Scientific and Industrial Research.



belief that the embryo either receives sufficient nutrients from the mother or dies when the supply is inadequate, is no longer accepted. The intra-uterine embryo of a malnourished female can develop with structural and functional abnormalities. The relationship between maternal malnutrition and congenital abnormalities is well known in animals, e.g. the development of microphthalmos, brachygnathia, cleft palate, etc. Further investigation is necessary to prove a similar relationship in man.<sup>1</sup> Prenatal deficiencies may have a permanent influence on postnatal development. In countries where severe iodine deficiency occurs, hypothyroid mothers may give birth to mentally retarded children.

A certain time elapses between the occurrence of a nutritional deficiency and the onset of nutritional disease. This period can be short or long, depending on the amount of nutrient reserve in the body, and the degree of nutritional deficiency. When the nutrient reserves have been sufficiently exhausted, tissue depletion occurs, followed in succession by biochemical 'lesions', functional changes and, finally, anatomical lesions.<sup>2</sup>

This is a general description of the pathogenesis of a deficiency disease. The following factors are, however, also important:

1. Certain periods in the life span of Man are marked by increased requirements for certain nutrients, e.g. during the active growth period, pregnancy and lactation, and during the post-operative period.

2. More recently, increased importance is being attached to certain constituents of the diet, the so-called anti-metabolites,<sup>3</sup> which may cause a deficiency by destroying or inactivating essential nutrients in the diet or in the body.

3. The dietary habits and pattern of modern Man are important features in causing deficiency diseases, e.g. the use of refined or processed foodstuffs, and the tendency to use cow's milk instead of mother's milk in infant feeding. Platt<sup>4</sup> devotes considerable attention to this subject and speculates on the following disadvantages of cow's milk:

- (a) The baby fed on cow's milk receives only two thirds of the amount of milk sugar contained in an equivalent amount of mother's milk. It is known that galactose, a constituent of milk sugar, is essential for the normal development of the central nervous system.

- (b) Galactose is also essential for the formation of extracellular material (ground substance) and connective tissue. Platt speculates on a possible connexion between deficiency of this sugar and the higher incidence of collagen diseases, e.g. rheumatic fever, rheumatoid arthritis, peri-arteritis nodosa, lupus erythematosus and scleroderma.

Furthermore, mother's milk may be an important source of antibodies for the baby.

## A. DISEASES OF THE CARDIO-VASCULAR SYSTEM AND THE BLOOD

### I. CORONARY HEART DISEASE, ATHEROSCLEROSIS AND DIET

The work of Keys has focussed attention on the important relationship between fat intake, serum cholesterol concentration and the incidence of coronary heart disease, which is responsible for most deaths in the U.S.A. and possibly also in other Western countries. To a certain extent the work of Walker and of Higginson in South Africa supports the results of Keys. These workers came to the following important conclusions:

- (a) Serum cholesterol values are low in the South African Bantu, whose fat intake supplies only one third of the calories furnished by fat in the American diet.

- (b) Post-mortem investigations have indicated that the complications of atherosclerosis are less frequent amongst the Bantu than among comparable American population groups.

It therefore seems logical to seek a connexion between fat intake and the development of atherosclerosis. However, Walker<sup>5</sup> points out two findings which appear to be contrary to this concept:

- i. The fat intake of the Eskimo is high (40% of total calories) yet his serum cholesterol values are not markedly elevated. Cardiovascular diseases are almost unknown amongst the Eskimos.\*

- ii. Low serum cholesterol values are found in strict vegetarians in spite of their high fat intake. An investigation of the incidence of atherosclerosis amongst vegetarians would be interesting.

It should also be noted that a low fat intake is only one aspect of the dietary pattern of the Bantu, and a low incidence of atherosclerosis only one feature of his disease pattern.<sup>5</sup> The diet of the Bantu, although it may possibly contain sufficient calories and total proteins, is low in animal protein, fat, cholesterol, sugar and certain minerals and vitamins, but is high in starch and roughage. There is a high incidence of liver disease in this population group, but a low incidence, not only of atherosclerosis, but also of appendicitis, gastric ulcer, diabetes, gall stones and certain types of cancer. The influence of dietary pattern on these diseases requires further investigation.

It is therefore possible that fat intake and serum cholesterol values must be part of a

\* Apart from total fat, the type of fatty acid (i.e. unsaturated *versus* saturated) also seems important.<sup>21</sup>

specific dietary pattern, before they become important in the pathogenesis of atherosclerosis. It is perhaps too much to expect that a decrease in fat intake alone will have a marked influence on the development of atherosclerosis; total calories may be of greater importance than fat calories alone.<sup>5</sup>

## II. DIET AND CARDIAC FAILURE

A deficiency of vitamin B<sub>1</sub> (thiamine) causes the classical syndrome of beri-beri. Different types of this syndrome are encountered:

(a) Symptoms and signs of affection of the central and peripheral nerves can predominate. (Wernicke's encephalopathy, dry beri-beri).

(b) Oedema can be the over-riding symptom. (Wet beri-beri).

(c) The heart can be primarily affected. (Cardiac beri-beri).

(d) There can be a mixture of the foregoing symptoms and signs, with other deficiency states. Wet beri-beri is probably due to combined thiamine and protein deficiency.

The following observations prove that thiamine deficiency is not always the only factor in the so-called 'nutritional heart':

i. Gillanders<sup>6</sup> described a series of cases of cardiac failure in Johannesburg which did not correspond with the classical beri-beri heart. There is a possibility that a deficiency of protein, especially animal protein, plays an important role in this type of cardiac failure.

ii. Cases of sudden death in children have been described, due to an affection of the heart muscle. There was no indication of thiamine deficiency, but signs of scurvy were encountered.<sup>7</sup> A multiple rather than a single deficiency can be a common cause of heart failure.

## III. DIET AND DISEASES OF THE PERIPHERAL BLOOD VESSELS

Symmetrical gangrene of the legs is common amongst the Bantu. The immediate cause is obstruction of the circulation in the extremity. None of the usual clinical causes is implicated in this type of gangrene. The condition starts with oedema, followed by pain and, finally, gangrene. Gelfand<sup>8</sup> concluded that a nutritional deficiency, especially of protein, may injure the wall of the peripheral blood vessel. This is followed by oedema, with secondary impairment of circulation and, eventually, gangrene.

## IV. DISEASES OF THE BLOOD (ANAEEMIA)

Several dietary factors play an important role in normal development of blood, the most important being protein, vitamins (C, B<sub>12</sub>, B<sub>6</sub> and folic acid) and minerals (iron, copper, manganese, magnesium).

Recent research has indicated that vitamin B<sub>12</sub> is important in the aetiology of pernicious anaemia. The diet may not necessarily be deficient in vitamin B<sub>12</sub> but impairment of absorption or increased excretion can cause a deficiency state.

Iron deficiency is an especially important cause of anaemia in the female who loses a large amount of iron during the menstrual periods. During pregnancy the mother must also provide the iron requirements of the foetus. Growing children need extra amounts of iron for normal development of blood and tissue (especially muscle) and for the formation of various respiratory enzymes. Vitamin C plays an important role in this connexion through its influence on the absorption of iron from the intestinal tract.

## B. TUBERCULOSIS

Most population groups who suffer from undernutrition show a high incidence of tuberculosis. Signs of undernutrition were encountered amongst the population of Newfoundland in 1944. Simultaneously the incidence of tuberculosis was relatively high.<sup>9</sup> Apart from undernutrition, other factors are also important. A congenital susceptibility to tuberculosis has been implicated as one of the factors in the high incidence of this disease amongst primitive people.

Undernutrition is usually accompanied by poverty, poor sanitation and poor housing. The primary role of undernutrition is proved by the fact that although housing conditions deteriorated markedly in Britain during World War II, the population was generally better fed than during the pre-war period, and the incidence of tuberculosis did not increase significantly. Against this the Germans, always regarded as a nation with a high racial immunity against tuberculosis, suffered both poor housing conditions and undernutrition during the post-war period, and the incidence of tuberculosis showed a marked increase.<sup>2</sup>

Tuberculosis tends to be more fulminating in under-nourished persons than in those receiving a balanced diet, although body temperature may not be markedly elevated. Small lesions in the lung become bigger, show more marked caseation and spread at a higher tempo to other parts of the body, with involvement of the glands and joints. In this connexion it is interesting to note that Ashwell as long ago as 1836 observed that tuberculosis patients improved more rapidly and showed fewer

complications when extra inorganic iron salts were included in their diet.

Information obtained since the end of the last war shows that protein deficiency and possibly also vitamin A and C deficiencies are most important in the relationship between undernutrition and tuberculosis.

Long<sup>10</sup> cites the following instances to illustrate the influence of protein deficiency on resistance against tuberculosis.

(a) During World War I, when protein and fat were the two most important dietary deficiencies, the incidence of tuberculosis increased markedly in Europe.

(b) The tuberculosis death rate increased in Denmark during the first part of World War I, but decreased during 1918, probably as a result of the 1917 blockade which compelled the people of Denmark to consume their own supplies of meat, milk and butter. Long refers to Faber's conclusion that the increase in the tuberculosis death rate was closely related to meat and fish deficiencies, and that the initial increase resulted from a protein deficiency.

These observations are of special significance in relation to our Bantu population, amongst whom a deficiency of good quality protein is the most important dietary defect.

Apart from protein deficiency, the tuberculosis patient may also suffer from a deficiency of vitamin C and A and, in the advanced stage, from a calcium deficiency. Getz and Koerner<sup>11</sup> showed that vitamin A deficiency could be correlated with the occurrence of tuberculosis of the lung.

*Protein Deficiency and General Resistance against Disease.* The white cells and antibodies in the blood are dependent on an adequate intake of dietary protein for structural and functional requirements. An extreme degree of protein deficiency may therefore lead to degenerative changes in the bone marrow and lymphoid tissues and to a decrease in the ability of the antibody mechanism to manufacture antibody protein. Evidence that this is the case is accumulating, and that such a protein deficiency can cause decreased resistance against bacterial infections.<sup>10</sup> When the protein supply is so low that oedema occurs, the chances of a secondary infection increase. The exact relation between vitamins, minerals and resistance against infection is more difficult to indicate, but there is proof for such a concept on theoretical grounds alone.

#### C. DISEASES OF THE LIVER

It is well known that protein deficiency can cause injury to the liver, and that chronic protein deficiency can be an important factor in the development of liver cirrhosis. The

work of Berman, Gillman and others has shown that lack of protein can also be an important factor in the high incidence of primary carcinoma of the liver in our Bantu population.

The liver is the central organ in the metabolism of nutrients absorbed from the gut. When the function of the liver is affected we can expect diffuse effects in the body:

(a) The liver plays an important role in the detoxication of the sex hormones. When the liver is injured, due to a deficient diet, this function is disturbed. This might be important in the incidence of gynaecomastia and atrophy of the sex glands amongst the Bantu.

(b) The sex hormones and the hormones of the adrenal cortex influence the formation of connective tissue. Keloid tumours of the skin and fibrosis of the heart muscle are common amongst the Bantu, who also show a high incidence of liver injury due to dietary deficiency.

Other diseases which are more common amongst non-Europeans than amongst Europeans, and in which a primary nutritional deficiency might play a role due to involvement of liver function, are prolapse of the female genital organs and rupture of the uterus.

#### D. DISEASES OF THE TEETH (DENTAL CARIES)

A tooth consists mainly of mineral salts which are deposited in a protein matrix. From a nutritional standpoint the possibility exists that a maldeveloped tooth may show greater susceptibility to caries.

The precise mechanism of the carious process has not been satisfactorily explained, but one view is that acids (formed in the mouth from bacterial decomposition and fermentation of carbohydrates and sugars) erode the minerals of the tooth. This occurs especially at sites where sugars are impacted, e.g. between the teeth and gums and in grooves on the teeth. On the other hand, the protein matrix can also be digested by proteolytic enzymes—the proteolytic *versus* the acidogenic theory. Carbohydrate seems to be the scapegoat, and especially those sugars which are easily fermented, e.g. sucrose and monosaccharides. Sticky sweets which accumulate between the teeth and in grooves on the molars, cause most trouble; also sugars in liquids which penetrate into the finest grooves, especially acidic drinks.

During the war years, when sugar was in short supply, surveys in areas such as the Scandinavian countries revealed that caries decreased with a lower consumption of sugar, and increased when more sugar became available. A group of Australian workers recently published the results of a 5-year study in which

a very low incidence of caries was found in a group of 81 white children in a children's home.<sup>12</sup>

The diet of the children was strictly controlled, and refined carbohydrates, such as sugar and white flour, were excluded. Cooking and processing were reduced to a minimum to ensure consumption in as natural a state as possible. The main ingredients were whole wheat porridge, whole meal bread, whole meal biscuits, wheat germ, fresh and dried fruit, cooked and raw vegetables, butter, cheese, eggs, milk and fruit juices supplemented with vitamin concentrates, honey or molasses for sweetening, and nuts. Almost no meat was included. Sixty-three of the 83 children developed no caries and, where pitting did occur, it was not serious and progressed slowly. In contrast, children examined in other areas showed a caries incidence of 92-96%.

The maintenance of sound mouth hygiene and dental treatment will certainly help to combat caries. Penicillin in a caries-inducing diet prevented caries in rats.<sup>13</sup> Other disinfectants decreased the incidence. Unfortunately, substances such as antibiotics cannot be employed in practice. The addition of fluorine to water or the application of this mineral to the surface of the teeth is also being considered. It is known that 1 p.p.m. fluorine in the water causes a suitable fluoro-apatite to form (especially during development of the tooth) which increases the resistance to the action of acids. Fluorine is not without dangers, and at higher concentrations may cause dysfluorosis which can lead to a disturbed function of the ameloblasts and odontoblasts of the tooth (chronic endemic fluorosis). Eventually osteosclerosis, calcification of the ligaments of the vertebrae, and goitre may develop. Fluorine has been applied, with some measure of success, to the surface of the teeth. The question is whether daily brushing and thorough rinsing of the mouth after each meal will not have the same protective action.

To what extent, apart from hereditary factors, can a healthy diet (which includes unsifted cereals and little sugar) together with the application of mouth hygiene, provide practical steps in the control of dental caries?

#### E. DISEASES OF THE THYROID (GOITRE)

The role of iodine in the prevention of endemic goitre is well known. The iodine content of a food is dependent on the iodine concentration in the soil and water. When the

concentration of available iodine is low, the incidence of endemic goitre is high.

It has been shown that several other substances in the diet, apart from iodine, may be important in the causation of goitre.<sup>14</sup>

#### F. DISEASES OF THE CENTRAL NERVOUS SYSTEM

*The Relation between Nutrition and Intelligence.* Much more work is required in this field, but there is no doubt that a relationship does exist. The following points should be noted:

(a) The I.Q. of the cretin is very low. Intelligence improves after treatment with iodine.

(b) de Wet<sup>15</sup> has claimed that there is a relationship between undernutrition and certain psychotic states in Bantu women of the Eastern Province.

(c) *Phenylketonuria*: An abnormal metabolism of the essential amino acid phenylalanine in certain intellectually retarded children has been noted in Britain.<sup>16</sup> The intelligence of those children was significantly improved by a diet low in phenylalanine.

(d) The amino acid glutamic acid has been claimed to have a stimulating effect on the intellect in some cases, but this has been disputed.

Although the mechanism of the relationship between nutrition and the psyche has not been established, there is no doubt that dietary deficiencies do influence the will to work, the capacity for work and the personality. Motivation, which is so important in the performance of a duty, is especially influenced by sub-optimal nutrition.<sup>17</sup>

The B vitamins are essential for normal function of nervous tissue and, with the modern sophistication of food habits and the consumption of foods processed at high temperatures, there is a possibility that sub-clinical and clinical nervous disorders may be induced.

In diseases of the nervous system attention must be given both to malnutrition and to undernutrition.

#### G. OVERNUTRITION

##### 1. OBESITY

Certain types of obesity are due to intracranial lesions (e.g. of the hypothalamus), to disorders of the endocrine glands (pituitary, adrenal cortex, thyroid or gonads) or may be hereditary. In these forms of obesity overnutrition *per se* does not play such an important part. However, there is another type, the so-called simple obesity, which occurs more frequently and where overnutrition is of primary importance. In this type, obesity is simply due to overeating by the patient in relation to his energy requirements.



*The Dangers of Obesity:* (a) Owing to increased weight, muscular exertion places a greater load upon the heart and the circulatory system. The incidence of hypertension is relatively high in persons who are overweight.

(b) Diabetes is more common in the obese.

(c) Persons who are grossly obese are said to be less resistant to infections and are poorer surgical risks than those of normal weight.

(d) The incidence of gall stones is relatively high in the obese. According to Baumann<sup>18</sup> 88% of persons with gall stones are overweight.

(e) *Life Expectancy:* Insurance statistics show that overweight after the age of 35 years is associated with a much higher death rate than that of lean or normal weight persons, and that weight reduction in such people increases life expectancy.

## 2. OTHER NUTRIENTS

Deleterious effects result from excesses, not only of calories but also of other nutrients. The toxic signs of vitamin D excess are well known. During the last few years several cases of vitamin A toxicity have been described, especially in babies who received an excess of vitamin A concentrates. Other nutrients are also under suspicion, e.g. amino acids, minerals and certain vitamins.

## H. THE ROLE OF INFECTION (BACTERIAL AND PARASITIC) IN THE ETIOLOGY AND DEVELOPMENT OF DIFFERENT NUTRITIONAL DEFICIENCIES

It is generally accepted that the nutritional state influences resistance to certain infections, e.g. tuberculosis, but it is not generally realized that infectious diseases can also play a role in nutritional deficiencies. This fact is of special significance in the Bantu population with its high incidence of malaria and other parasitic infestations, e.g. bilharzia and amoebiasis. Trowell, Davies and Dean<sup>19</sup> remarked on the important role of malaria in the etiology of kwashiorkor. Parasitic infection of the gut is specially important. The precise role of infections in nutrition is not known, but the following factors may have an influence:

1. The fever and hypermetabolism of infections increase the body's requirements for certain nutrients, especially protein and vitamins.

2. Diarrhoea, which is associated with infections of the gut, can retard the absorption of essential nutrients. It has been claimed that ascari infestation aggravates kwashiorkor due to impaired absorption of nitrogen from the gut.

3. Certain infections, especially those of the upper respiratory tract, diminish the secretion of digestive juices by the pancreas. Respiratory infections affect the growth response of children on a low protein: calorie ratio diet. Loss of weight occurs in the well-nourished child, but this returns to normal early during the convalescence, due to compensatory

growth. In the malnourished child this return to normal is retarded.

4. The flora of the gut synthesize different nutrients, especially vitamins and certain of the amino acids. Certain parasites compete with the body for these nutrients, and this may lead to deficiency of the substance concerned. It is reported that all the signs of a riboflavine deficiency may arise in a patient with amoebiasis, even though the patient receives adequate amounts of the vitamin in the diet. As soon as the amoebae are removed, deficiency signs disappear.

5. Anorexia, usually associated with infection, can also cause the development of nutritional deficiency.

## I. CHRONIC PROTEIN MALNUTRITION

Intensive investigations are being conducted on the syndrome of kwashiorkor, which is so prevalent amongst the Bantu population of Africa. It has been defined as resulting from protein malnutrition in the post-weaning phase, i.e. from relative deficiency of protein foodstuffs in a diet which supplies relative abundance of carbohydrate in the form of starches.<sup>20</sup> As is to be expected when chronic protein deficiency is the cause of wide-spread ill health, every system of the body can be affected by disease states which are seldom encountered amongst more privileged communities. Apart from kwashiorkor, Brock names the following conditions in which protein malnutrition may play a role:

(a) Nutritional liver cirrhosis and hepatoma of the liver.

(b) Unexplained decompensation of the heart.

(c) Fibrosis of the heart muscle (endomyocardial fibrosis).

(d) Obstruction and inflammation of the blood vessels (veno-occlusive disease of Jamaica and idiopathic thrombophlebitis of Rhodesia).

(e) Tropical leg ulcers and tropical inflammation of the muscles (pyomyositis).

(f) Inflammation of the conjunctiva (keratoconjunctivitis).

(g) The high incidence of gynaecomastia and atrophy of the testes amongst Natives.

(h) Rupture of the uterus (common amongst Native women in Uganda).

(i) Chronic enlargement of the salivary glands.

(j) Diseases of the kidney, with oedema, and a low protein concentration in the blood.

## J. THE NUTRITION OF ELDERLY PEOPLE

Elderly persons are especially subject to under-nutrition or malnutrition for the following reasons:

(a) Sociological, economic, psychological and mechanical factors, e.g. loss of teeth, restricted finances, loneliness and loss of social contacts, or abnormal prejudice against certain types of food.

(b) Physiological and biochemical factors, e.g. loss of the sensations of taste and smell, subnormal secretion of digestive juices (especially hydrochloric

acid and pepsin), dehydration of tissue, a relative increase in body fat, etc.

Protein, calcium, iron, the B vitamins and possibly vitamin A, are usually consumed in suboptimal amounts. The well-known distaste of elderly people for milk undoubtedly contributes to low calcium and protein intakes. This is unfortunate, because milk is a convenient source of essential nutrients for the aged.

When we discuss the nutrition of the aged it is important to realize that each case must be regarded individually. The sociological, psychological and economic factors are possibly as important as physiological and biochemical factors in the development of malnutrition among elderly people. A panel of workers consisting of nutritionists, medical practitioners, nurses, social workers, economists and other experts could suggest a practical programme to ensure that people in the higher age groups will remain happy and active citizens of the State.

#### OPSOMMING

Die skrywers verstrek 'n oorsig van die rol wat ondervoeding en wanvoeding speel as bydraende oorsake van sommige van die bekende siektetoestande, bv. die kardiovaskulêre stelsel en die bloed, tuberkulose en weerstand teen infeksie, die lewer, die tande, die skildklier, die sentrale senuweestelsel en vetsug.

Hulle bestee ook aandag aan die rol van infeksie en infestasie by die toestandbrenging van verskillende gebreke-toestande, en sluit af met 'n oorsig van die belangrike mediese, psigologiese en sosiologiese faktore wat die dieet van bejaardes beïnvloed.

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## THE EFFECT OF CONTACT DISINFECTANTS ON THE BACTERIAL FLORA OF THE MOUTH

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The present investigation was concerned with the relative efficacy of various contact disinfectants.

Preliminary tests *in vitro* were performed before investigating the effect of antiseptics on the bacterial population in the mouth.

#### IN VITRO TESTS

The substances investigated included cetrimide, paraformaldehyde, hexylresorcinol, mercurochrome, a mixture of volatile oils, a combina-

tion of phenol and iodine (as used in iodized throat lozenges) and the antibiotics neomycin and bacitracin. These substances were tested against the following organisms:

*Staphylococcus aureus* (4 strains), *Streptococcus haemolyticus*, *Pneumococcus* Type III. Gram-negative bacteria were represented by *Pseudomonas pyocyanea* and *Klebsiella pneumoniae*. *Bacillus subtilis* was used as an example of a spore-bearing organism. *Corynebacterium diphtheriae* was included because of its importance in throat infections. The antifungal effect of the agents was studied on *Monilia albicans*.



The suggestions of Watson and Reddish<sup>1</sup> in the selection of culture media were followed.

Twenty-four-hour bacterial cultures were diluted with saline to contain 50,000 organisms per c.c. or were used undiluted. The counts in the undiluted cultures varied, but were in the range of 1,000-2,000 million per c.c. Four-day-old undiluted cultures of *Monilia* were used.

In most assays both diluted cultures with 50,000 organisms per c.c. and undiluted 24-hour cultures were tested. The results were read after incubation for 24 and 78 hours.

In preliminary screening the mixture of volatile oils and the phenol-iodine combination showed, in concentrations based on the recommended doses for throat lozenges, so low an antibacterial action that they were omitted from subsequent tests. Mercurochrome had only a weak effect on *Staphylococci*, *Streptococci* and *Monilia* and was not considered in more detailed tests. Hexylresorcinol was very effective against *Staphylococci*, *Klebsiella pneumoniae* and *Monilia*, but very much less so against *Corynebact. diphtheriae* and the spore-bearing *B. subtilis*.

Table 1 reveals the following points of interest:

**Cetrimide.** Very effective against Gram-positive cocci, *B. subtilis*; inhibits *Monilia* in relatively low concentration; less effective against *Corynebact. diphtheriae*; ineffective against *Pseudomonas pyocyanea*.

**Paraformaldehyde.** (In the evaluation of the figures it should be considered that whereas the recommended dose of cetrimide is 2 mg. per tablet, that of paraformaldehyde is 10 mg. for oral antiseptics). It readily inhibits *Staphylococci*; *Streptococci* and *Pneumococci* require higher concentrations. Against these cetrimide is more effective. Paraformaldehyde inhibits the growth of *Klebsiella pneumoniae* and *Corynebact. diphtheriae* in low concentration. It has strong inhibiting action on *Pseudomonas pyocyanea* and *Monilia*. When judging the efficacy against *Pseudomonas pyocyanea* it should be remembered that inhibition of this organism requires comparatively very high concentrations of all agents including neomycin and of the very potent antiseptic phenylmercuric nitrate. The effective concentrations of these agents against *Pseudomonas pyocyanea* are approximately 100-fold greater than those which inhibit the growth of the other bacteria tested.

The antibiotics neomycin and bacitracin were very effective against *Streptococci* and *Staphylococci*, but the inhibiting concentration of bacitracin against *Pneumococci* is much higher than that of neomycin. *Corynebact. diphtheriae* was found equally sensitive to neomycin and bacitracin. The Gram-negative bacilli *Klebsiella pneumoniae*, *Pseudomonas pyocyanea* and *B. subtilis* responded well to neomycin but were resistant to bacitracin in the concentrations used. As was to be expected, these antibiotics had no effect on *Monilia*.

TABLE I.

Organism		Cetrimide		Paraformaldehyde		Hexylresorcinol		Mercurochrome		Neomycin		Bacitracin		Phenyl Hg Nitrate	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B
<i>Staphylococcus aureus</i> I (Wood-Strain) ..	50,000 organisms	1	1.9	5	10			62	125	0.5	1	7.5	15.5		
	cc. 1 drop	1.9	3.5	10	19					3.5	7.5	15.5	31	0.25	
<i>Staphylococcus aureus</i> II	50,000	0.5	1	1	1.9			125	250	1.9	3.5	7.5	15.5		
	24-hour culture	7.5	15.5	7.5	15.5					1.9	3.5	15.5	31		
<i>Staphylococcus aureus</i> III	50,000	1	1.9	2.5	5	1	1.9			1.9	3.5	3.5	7.5		
	24-hour culture	1	1.9	10	19					1.9	3.5	3.5	7.5		
<i>Staphylococcus aureus</i> IV	50,000	1	1.9	2.5						1.9	3.5	1.9	3.5		
	24-hour culture	1.9	3.5	5	10			62	125	1.9	3.5	1.9	3.5		
<i>Streptococcus haemolyticus</i>	50,000	1.9	3.5	19	35					1.9	3.5	7.5	15.5	0.25	
	24-hour culture	1.9	3.5	19	35			62	125	1.9	3.5	7.5	15.5		
<i>Pneumococcus</i> Type III	50,000	1.9	3.5	75	155					3.5	7.5	62	125		
	24-hour culture	3.5	7.5	155	310					3.5	7.5	62	125		
<i>Corynebacterium diphtheriae</i>	24-hour culture	7.5	15.5	35	75	120	240			7.5	15.5	7.5	15.5		
<i>B. Friedlander</i> ..	24-hour culture	31	62	35	75	7.5	15.5			1	1.9	500	1000	0.25	
<i>Pseudomonas pyocyanea</i> ..	50,000	250	500	35	75					3.5	7.5	1000			
	24-hour culture	1000		75	155					15.5	31	1000		30	
<i>B. Subtilis</i> ..	50,000	7.5	15.5	10	19	3.5	7.5			1	1.9	500	1000		
	24-hour culture	7.5	15.5	10	19	40	65			15.5	31	1000		0.5	
<i>Monilia albicans</i> ..	72-hour culture	32	62	100		35	60	125	250	1000		1000			

The figures indicate both the maximum concentration of the substance on which growth occurred (A), and the lowest concentration which completely inhibited growth (B).

All figures in the Table indicate the concentrations of the disinfectants in micrograms per c.c.

Since the action of contact disinfectants on oral bacteria is necessarily limited to a short period, only the readings after incubation for 24 hours are shown.

*Staphylococcus aureus*. Except for the organism marked I in Table 1 [a highly toxigenic laboratory strain (Wood)] the others were isolated from human lesions. Although only 4 strains were used in this study, strain differences to antiseptics were marked. Compared to the others, strain II was more resistant to cetrimide. The increased resistance was also noticeable with respect to paraformaldehyde, but was not considerable. In contrast, neomycin and bacitracin were very effective against this strain. Strain I, on the other hand, whilst particularly sensitive to cetrimide and paraformaldehyde, required the highest concentration of neomycin and bacitracin for inhibition.

#### THE INFLUENCE OF INOCULUM SIZE ON THE ANTIBACTERIAL ACTIVITY

This was studied by increasing the bacterial counts approximately 1,000-fold in parallel tests. With regard to cetrimide and paraformaldehyde, *Staphylococcus aureus* strain II was the only exception to the observation that 1,000-fold increase of the inoculum size either had no influence on the inhibiting concentration or required only a 2-fold increase. This also applied to the most resistant *B. subtilis* and, in the case of paraformaldehyde, to the notoriously hardy *Pseudomonas pyocyanea*.

Babbs *et al.*<sup>2</sup> found it necessary to increase the concentration of the quinaldinium derivatives 5-fold to produce inhibition when the inoculum was increased 100-fold. However, in this investigation it was found that the antibacterial effects of cetrimide and paraformaldehyde were relatively independent of the bacterial count.

#### IN VIVO TESTS

These tests were performed on healthy volunteers. Tablets containing 2 mg. cetrimide and 10 mg. paraformaldehyde with hexylresorcinol, amyl-m-cresol and other flavouring agents were used.\*

*Method:* All the tests were done in the mornings. Samples of the oral flora were obtained by the rinse method which was considered the most reliable of all available techniques.<sup>3</sup> The mouth was rinsed with a measured quantity (20 c.c.) of sterile physiological saline for 30 seconds, the solution being swished vigorously and then expectorated into a sterile Petri dish. This first rinse served as the initial, control specimen. Two hours were allowed to re-establish the oral flora. Two tablets were placed in the mouth. The volunteers were instructed to

keep the tablets for 15 minutes without sucking in order not to dilute the saliva through stimulated secretion. The tablet residues were then removed. At 15 and 30 minutes, 1 and 2 hours, the mouth was rinsed, the rinse suitably diluted and immediately plated out. The colonies were counted after 48 hours incubation.

Two further tests were included to ascertain the effect of repeated application of the tablets. At hourly and half-hourly intervals 2 tablets were placed in the mouth for 15 minutes. Fifteen minutes later the rinse was collected. The tests were done on 4 persons, 2 of them partaking in repeated tests.

The total number of bacteria removed with the initial 20 c.c. rinse was in the range of 30-100 million. These figures are in agreement with those found by Ostrolenk and associates.<sup>3</sup> It is impossible to establish the number of organisms actually present in the mouth, but it must be more than that in the rinse. There was no opportunity of testing persons with sore throats or other oral infections. It may, however, be assumed that the bacterial count would be greater in such conditions. Accordingly, it is believed that when the efficacy of an oral antiseptic is tested *in vitro*, inocula of not less than 100 million organisms per c.c. should be used, especially if the activity of the agent diminishes considerably with increasing bacterial count.

Interest was focussed on the effect of antiseptic tablets on the total bacterial count, *Streptococci* and *Staphylococci*. These two organisms were selectively cultured and it was found, without further detailed investigations, that the overwhelming majority of the other organisms cultured from the rinse were *Lactobacilli* and yeasts.

After the use of 2 tablets for 15 minutes the total bacterial count as well as the numbers of *Streptococci* and *Staphylococci* fell sharply and then rose gradually, approaching about 50% of the initial counts in 1½-2 hours. With hourly medication the counts remained low throughout. If the interval between the use of the tablets was reduced to 30 minutes, the bacterial counts diminished further, but the differences between hourly and half hourly applications were too small to have any practical importance.

The efficacy of an oral antiseptic can be evaluated by calculating the percentage decrease of the bacterial count in successive rinses following the application of the agent.<sup>1</sup> The percentage decrease of the oral bacterial population following the use of Aldeon tablets is shown graphically in Fig. 1.

It is fully appreciated that from the small

\* Aldeon Throat Lozenges.

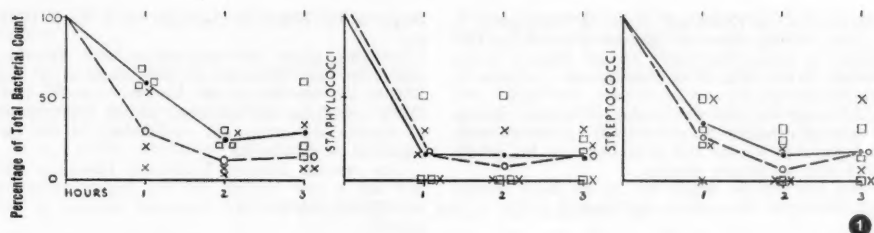


Fig. 1. In these curves each X represents a reading after hourly applications and each square a reading after half-hourly applications.

number of persons included in the tests no far-reaching conclusions can be drawn.

It was gratifying to notice that the observations concerning bacterial counts and their constancy in a particular subject were in agreement with the extensive experience of Ostrolenk and his associates.<sup>3</sup>

Persons wearing dentures are not suitable for these tests. In such persons (data not included in Fig. 1) unexpected, irregularly high counts may appear in some of the rinses, because the rinse washes the space between the palate and the denture. This results in the sudden removal of large numbers of bacteria which had not been reached by the antiseptic.

Although none of the available methods can offer direct numerical evaluation of the bacterial population of the mouth, it can be assumed that the number of bacteria removed in the rinse bears a direct relation to the number of those actually present in the mouth.<sup>4</sup>

With proper allowance for the limitations inherent in the method of testing employed and for the relatively small number of individual observations, these studies show clearly that by repeated application of a suitable throat tablet the oral bacterial population, including *Streptococci* and *Staphylococci*, can be reduced for a prolonged period of time to a fraction of that initially present.

#### SUMMARY

The effect of several disinfectants and of 2 antibiotics was tested *in vitro* on the growth of Gram-positive cocci, Gram-negative bacilli,

a spore-bearing bacillus, *Corynebacterium diphtheriae* and *Monilia albicans*.

The antibacterial action of a cetrimide + paraformaldehyde throat lozenge on the bacterial flora of the mouth was investigated *in vivo*. Hourly applications of such lozenges reduced the number of bacteria in the mouth, including *Streptococci* and *Staphylococci*, to a fraction of that found before such treatment.

#### OPSOMMING

Die effek van etlike ontsmettingsmiddels en van 2 antibiotica is *in vitro* getoets op die ontwikkeling van Gram-positiewe kokki, Gram-negatiewe basille, 'n spoordraende basil, *Corynebacterium diphtheriae* en *Monilia albicans*.

Die antibakteriese effek van 'n keeltabletjie bevattende setrimied plus paraformaldehid op die bakteriese flora van die mond is *in vivo* ondersoek. Die toediening elke uur van sodanige tablette het die aantal bakterieë in die mond, insluitende streptokokki en stafilokokki, verminder tot 'n onbenullige deeltjie van wat vóór behandeling in die mond aangetref is.

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#### NOTES AND NEWS · BERIGTE

##### IN MEMORIAM: DR. M. PESKIN

We deeply regret to record the death of Dr. Maurice Peskin at the age of 52.

Dr. Peskin was a distinguished neurologist and psychiatrist who also made an outstanding name

for himself in the field of forensic medicine. He was an eminent leader in medico-political matters and he included in his many activities the Tara Hospital Board, service on the staff of the Johannesburg General Hospital and numerous Committees. He was a former Acting Head of the Department of

Medicine of the University of the Witwatersrand.

After having been in general practice at Piet Retief, he joined the South African Medical Corps during World War II and served as a captain in Abyssinia.

Although he was the victim of several serious attacks of coronary thrombosis, he carried on with undiminished vigour and enthusiasm in his public work and his private practice.

His loss will be deeply felt by his many friends and colleagues throughout the country.

Dr. M. M. Suzman of Johannesburg was recently nominated to the Fellowship of the Royal College of Physicians, of London, by the Council of the College. He was elected to Fellowship at a meeting of the College held on 25 April, and was admitted as a Fellow on 30 May 1957.

While overseas he will also attend the Harvey Tercentenary Congress being held at the Royal College of Surgeons from 3-8 June 1957.

Dr. Suzman expects to be back in Johannesburg towards the latter part of June.

#### PLASTIC SURGERY FOR HIROSHIMA

An American Committee (initiated by Mr. Norman Cousins) is undertaking an extensive programme devoted to the plastic surgical rehabilitation of atom bomb casualties in Hiroshima.

The Committee has invited Dr. Jack Penn of Johannesburg to lead the first team to begin this work in Hiroshima itself and to train Japanese surgeons to carry on with the programme.



Dr. Jack Penn

The Japanese undertaking is a logical extension of the pioneer work in this field which Dr. Penn started some years ago in Israel (when he established a Plastic Surgical Unit in that country) and last year at Lamberne (Dr. A. Schweitzer's Clinic).

Dr. Penn left on 12 May for New York where he will organize the team and the necessary equipment for the expedition. He will be in Hiroshima by mid-June and he will spend at least one month in that city. He expects to be back in South Africa towards the end of July.

#### THE FATE OF THE DURBAN MEDICAL SCHOOL

On 2 May 1957, a meeting of members of the academic staff of the Faculty of Medicine was held; 76 full-time and part-time members of the academic staff were present and the following statement was unanimously adopted:

'We, the academic staff, teaching in the Faculty of Medicine of the University of Natal and assembled at this Meeting on 2 May 1957:

1. Have taken note of the considerations which the Minister of Education, Arts and Science requested the Dean on 22 March 1957, to place before us;

2. Have studied the provisions of the revised Separate University Education Bill which was intro-

duced in the House of Assembly on 8 April 1957, and

3. Have given consideration to the statement made by the Minister of Education, Arts and Science in the House of Assembly on 9 April 1957, conveying the intention of the Government to transfer the control of our Faculty to the Department of Education.

The revised Separate University Education Bill will set a new pattern for the higher education of African, Indian and Coloured persons in our country.

As University teachers we find this pattern unacceptable and we believe that it will have adverse effects on higher education in general and on medical education in particular for our African, Indian and Coloured peoples.

In view of the Minister's statement that it is the intention of the Government to remove our Faculty from the University of Natal, and because we believe that the new pattern for higher education will be applied to our Medical School at some time more convenient to the Government, we find that our previously stated objections to the legislation have in no way been removed and our fears in regard to the future of our School have, in fact, been confirmed.

We have now to state that our attitude as expressed in previous resolutions in regard to our continued service in the Medical School remains unaltered, and we are unable to give an assurance that all or any of us will be prepared to retain our posts until such time as the control of our Medical School is removed from the University of Natal and placed directly under the State.

This decision has been taken because we believe that we will be unable to carry out our academic and professional work and fulfil our responsibilities to our students under the conditions which will be established for the higher education of African, Indian and Coloured persons when the Separate Education Bill of 1957 is enacted.

(See also p. 269)

#### THE AMOEBIASIS RESEARCH UNIT IN DURBAN

The President of the South African Council for Scientific and Industrial Research, Dr. S. M. Naude, recently announced the expansion of this C.S.I.R. Unit in Durban.

Durban has always been notorious for amoebiasis, which takes a particularly virulent form in the African and has been responsible for much ill health and disability affecting the productivity of the area.



Dr. R. Elsdon-Dew

At one time the death rate was high, but thanks to the development by the Unit of new methods of treatment, the figure is now considerably less. Much still remains to be done in the fields of diagnosis, treatment and prevention.

Until now the unit has been small, consisting largely of volunteer workers under the directorship of Dr. R. Elsdon-Dew; but its work has attained world-wide recognition, as evidenced by the

visits to the Unit of many distinguished overseas visitors.

A new development has been made possible by a grant from the United States Public Health Service. These funds will permit extension of activity in directions hitherto impossible, and new avenues can now be explored.

It is a fitting distinction that the work of South

African scientists should be recognized by the United States Public Health Service in this way.

Dr. James J. Craig, M.B., B.Ch., Dip. Surg. (Rand), has commenced practice as an orthopaedic surgeon at 173 Lister Buildings, Jeppe Street, Johannesburg. (Telephones: Rooms: 23-5695; Residence: 44-8075).

## PREPARATIONS AND APPLIANCES

### BENZEDREX INHALER

SKF Laboratories (Pty.) Ltd. announce that *Benzedrex* Inhaler has replaced the present *Benzedrine* Inhaler which for many years has been the most widely known Inhaler prescribed by the medical profession.



*Benzedrex* Inhaler contains the new volatile vasoconstrictor—propylhexedrine. *Benzedrex* Inhaler has the same pleasant smell as the older *Benzedrine* Inhaler—but is more effective, giving faster, safer relief from nasal congestion. Propylhexedrine produces virtually no central nervous stimulation, no matter how large the dose.

These advantages make *Benzedrex* Inhaler an even better pocket treatment for the symptomatic relief of nasal congestion.

### LIGHT ALLOY ALUMINIUM CRUTCHES

Medical Distributors (of 236 Jeppe Street, Johannesburg) have been appointed Sole South African Distributors of Telescopic Adjustable Orthopaedic Appliances, made by the Concentric Company of Birmingham, England.

The range consists of elbow crutches, full length shoulder crutches and walking sticks, all of which are made up from light alloy aluminium and are adjustable in length.

Telescopic tubes provide up to 12 inches adjustment in length, by spring-loaded plungers, to suit people of varying height.

A special feature of the elbow crutches is that the hands can be used for opening doors, lighting cigarettes, etc. whilst the fore-arm clip retains the crutch on the arm. An ingenious locking device enables the patient to rest on the crutch in complete comfort and safety, with the fore-arm clip in a fixed horizontal position.

*Literature and Further Details from:* Medical Distributors, P.O. Box 3378, Johannesburg.

### INCREMIN DROPS (LEDERLE)

*Incremin* Drops (the latest Lederle product to be introduced to South African doctors) is a pleasant, cherry-flavoured liquid containing the essential amino acid, lysine, plus vitamins B<sub>1</sub>, B<sub>6</sub> and B<sub>12</sub>. It is indicated for all the many infants, children, elderly

patients and convalescents whose appetite is poor.

Albanese *et al.*<sup>1,2</sup> have shown that lysine can improve appetite and growth in infants and young children who were not eating and growing well and that it increases the efficient utilization of many proteins found in staple foods, particularly cereal and milk proteins.<sup>3,4</sup>

Elderly convalescent patients used protein more efficiently when lysine was added to their diet.<sup>4</sup> Stare<sup>5</sup> also suggested that supplementation with lysine will improve a high cereal diet.

It has been well established that vitamins B<sub>1</sub>, B<sub>6</sub> and B<sub>12</sub> are important in maintaining proper food intake and utilization. Lederle, by combining these B vitamins with lysine, have produced a most efficient appetite stimulant.

*Incremin* Drops are packed in 15 c.c. plastic squeeze bottles with dropper nozzle to provide accurate dosage. The usual dosage is 10 drops (0.5 c.c.) per day, though this may have to be increased to 20 drops daily in the patient who has been severely ill. The pack provides a month's treatment, however, for most patients.

*Enquiries to Sole Agents:* Alex. Lipworth Ltd., P.O. Box 4461, Johannesburg.

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### SALAZOPYRIN

#### FOR ULCERATIVE COLITIS

*Salazopyrin* contains salicylazosulphapyridine. It is an acid azo-compound of salicylic acid and sulphapyridine.

Chemical compounds of this class have a special affinity for connective tissue, and contrary to ordinary





sulpha compounds they accumulate and form depots in the tissues. *Salazopyrin* is then partially decomposed locally to 5-aminosalicylic acid and salphapyridine. As there are distinct changes in the subepithelial connective tissue in ulcerative colitis, it seems appropriate to treat this disease with a drug showing affinity for this tissue.

The drug has been available in Sweden and some other European countries during the past 12 years and during the last 5 years some very positive results have been reported from leading American gastroenterologists. In particular Bergen, of the Mayo Clinic, has amassed a great deal of useful information on the value of *Salazopyrin* in the treatment of ulcerative colitis. The drug has been accepted by the American Medical Association and is quoted in *New and Nonofficial Remedies*.

**Administration and Dosage:** *Adults.* The normal dose for adults is 2 tablets 4-6 times daily, adjusted to individual requirements. In case of diarrhoea it is important to give the higher dose (10-12 tablets per day).

The doses are to be given day and night until the active symptoms improve, and then during the waking hours. It is important to distribute the doses so that the interval during the night does not exceed 8 hours. The preparation should be taken with meals.

Bergen recommends courses of two weeks with an interval of a week between. The results of the treatment should be checked through the sigmoidoscope, and when the picture becomes satisfactory the dose may usually be decreased to 3 tablets daily. Should any signs of a relapse appear the dose should be raised immediately.

*Children:* The normal dose for children over 7 years is 1-2 tablets 3-6 times daily; for children 5-7 years  $\frac{1}{2}$ -1 tablet 3-6 times daily.

**Side Effects:** Serious side effects are extremely rare, but occasionally a high toxic fever with an exanthem may occur within 7-12 days. The dose should immediately be reduced to  $\frac{1}{2}$  tablet 3 times daily for 10-12 days, then again slowly raised. If fever and exanthem persist, administration of the drug should be discontinued for some days.

Blood and urine should be checked once a week during the first 3 weeks of the treatment, then every second week. Serious anaemia has not been observed during treatment with *Salazopyrin*, but a tendency towards leucopenia has been observed. Should signs of leucopenia appear the drug should be discontinued immediately.

**Packaging:** Available in tablets each containing 0.5 g. Bottles of 100 and 500.

**South African Distributors:** Protea Pharmaceuticals Limited, P.O. Box 7793, Johannesburg.

#### NULACIN

*Nulacin* tablets ensure control of gastric acidity by intragastric milk alkali drip therapy and provide a



convenient and effective form of treatment for peptic ulcer and other conditions of hyperacidity such as hiatus hernia and oesophagitis.

Ulcers do not arise or recur in the absence of free hydrochloric acid, and so their treatment requires some method of neutralization for the greater part of 24 hours.

In 1932 Winkelstein showed that continuous neutralization (hitherto impossible with the old milk and antacid dietary regime) could be obtained by intragastric milk-alkali drip therapy through a Ryle's tube. This treatment is obviously unsuitable for ambulatory patients, and for the all important prevention of ulcer relapse.

*Nulacin* tablets (devised to provide intragastric milk-alkali drip therapy for all patients) are composed of milk solids and antacids, so formulated that when placed in the mouth between the cheek and gum,

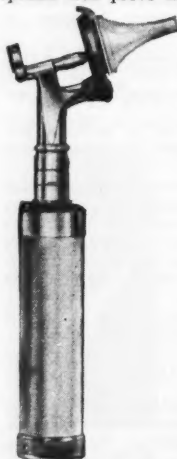
they will dissolve slowly over a period of from 20-30 minutes, allowing a small quantity of the milk and alkalis to pass down into the stomach with each act of swallowing. In effect intragastric milk-alkali drip therapy can be obtained without a tube by the sucking of a pleasant-tasting tablet.

*Nulacin* tablets are available in tubes of 25 and hospital packs of 120.

**South African Distributors for Horlicks Limited, Slough, Bucks.:** B.P.D. South Africa (Pty.) Ltd., P.O. Box 45, Jeppestown, South Africa.

#### DISPOSABLE SPECULA

The new Welch Allyn *Kleen-Spec* Disposable Specula will prove indispensable to the busy practitioner and, particularly,



Welch Allyn otoscope.

to the doctor doing routine tests on school children, factory hands, inmates of institutions, etc.

Apart from saving the time-consuming procedure of sterilization, there is never any danger of cross-infection, never any accumulation of soiled specula, and the permanent speculum is protected from soiling.

The whole process of using a *Kleen-Spec* Speculum for each patient takes less time than changing the old style speculum.

The Disposable Speculum Adaptor No. 255 is available at 14s. 9d. It is, therefore, possible to use the *Kleen-Spec* Specula on your present



Units of 200 *Kleen-Spec* Specula are obtainable at the low cost of 24s., whilst otoscope No. 250 or combination set No. 973, complete with 440 *Kleen-Spec* Specula are also obtainable.

*South African Distributors:* Westdene Products (Pty.) Ltd., P.O. Box 7710, Johannesburg.

### PROLADONE

#### LONG-ACTING ANALGESIC

**Chemistry:** Proladone is dihydrohydroxycodone pectinate, a slightly viscous aqueous solution, introduced by the Crookes Laboratories Limited.

**Pharmacology in Man:** A study has been made in human volunteers of the urinary excretion of dihydrohydroxycodone following injections of Proladone and dihydrohydroxycodone hydrochloride (Truchaud, 1954). The alkaloid appeared later and was present for twice longer (11 hours as compared with 5 hours) following Proladone than following dihydrohydroxycodone hydrochloride. Half the alkaloid was excreted within 1 hour following dihydrohydroxycodone hydrochloride and within 2½ hours following Proladone. Also 86.6% of the alkaloid injected was recovered from the urine following Proladone, whereas only 65% was recovered following dihydrohydroxycodone hydrochloride. These findings confirm the prolonged action of Proladone and provide evidence that dihydrohydroxycodone in the form of the pectinate is considerably more resistant to destruction in the body than in the form of the hydrochloride.

**Clinical Experience:** (1) *Post-Operative Pain Control.* In a series of 18 patients Belam (1956) found that after one injection (10 mg.) of Proladone given before the operation, no patient required any post-operative sedation within the first 14 hours. Only one patient in this series required any post-operative sedation at all. These findings were confirmed in a further series of 100 cases.

Mandel (1954) reported that 2 or 3 successive nights free from pain and insomnia resulted from single injections of Proladone (10 mg.) given in the evening to patients who had undergone orthopaedic operations. In these patients, morphine produced only short-lived and unsatisfactory analgesia. She found less difference between the effects of morphine

and Proladone in a group of patients who had undergone major abdominal operations, except in the case of those operated on for diaphragmatic hernia, where the effect of Proladone was greatly superior to that of morphine.

(2) *Control of Pain due to Inoperable Carcinoma.* Both Mandel and Belam found that Proladone produced satisfactory pain relief in cases of inoperable carcinoma. The relief of pain, in Belam's case, lasted for 6 hours—morphine produced 4 hours' relief in the same patient.

**Side Effects:** Nausea and vomiting occurred extremely rarely following injections of Proladone, except in patients receiving an inhalation anaesthetic for hysterectomy—here, the incidence fell when an intravenous anaesthetic was used. Many patients who experienced nausea and vomiting with morphine, received several injections of Proladone without experiencing nausea or vomiting and, in some, nausea appeared to be relieved by Proladone.

Belam reports no depression of respiration in his series, whilst Mandel reports a slight diminution of amplitude and a more marked slowing of the respiratory rate.

Proladone has no effect on renal function.

Two patients in Mandel's series received Proladone intravenously, in error. The injections produced immediate sleep which had all the characteristics of physiological sleep.

**Administration and Dosage:** Proladone is given by intramuscular injection—it should not be given intravenously.

The usual dose is 1 ml. (10 mg. of dihydrohydroxycodone) and this can be repeated when required.

**Packings:** 1 ml. ampoules in boxes of 6.

**Sole South African Agents:** South African Drugists (Division Sive Bros. & Karnovsky), Jeppe St., Johannesburg.

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## PREPARATE EN TOESTELLE

### BENZEDREX-INASEMTOESTEL

SKF Laboratories (Pty.) Ltd. kondig aan dat die *Benzedrex*-inasemtoestel die plek ingeneem het van die huidige *Benzedrine*-inasemtoestel wat baie jare lank die bekendste inasemtoestel was wat deur die mediese professie voorgeskryf is.



Die *Benzedrex*-inasemtoestel bevat die nuwe vlugtige vaatvernouer, propiëlheksedrien. Die *Benzedrex*-inasemtoestel het dieselfde aangename reuk as die ouer *Benzedrine*-inasemtoestel, maar is doeltreffender, en verleen vinniger en veiliger verligting in gevalle

van kongestie van die neus. Propiëlheksedrien het feitlik geen stimulerende effek op die sentrale senuweestelsel nie—ongegag hoe groot die dosis ook al mag wees.

Hierdie voordele maak die *Benzedrex*-inasemtoestel 'n selfs beter sakbehandeling vir die simptomatiese verligting van neuskongestie.

### LIGTE ALUMINIUM ALLOOI KRUKKE

Medical Distributors (van Jeppestraat 236, Johannesburg) is aangestel as Alleen Suid-Afrikaanse Verspreiders van Teleskopiese en Verstelbare Ortopediese Toebehore, vervaardig deur die Concentric Company van Birmingham, Engeland.

Die reeks bestaan uit elumboog krukke, vollengte skouer krukke en wandelstokke. Al hierdie items is vervaardig uit 'n ligte aluminium allooi en is in lengte verstelbaar.

Die teleskopiese buise kan tot 12 duim in lengte verstel word deur middel van geveerde drukkers, om sodoende aan individuele lengtes te voldoen.

'n Unieke eienskap van die elumboog krukke is dat die hande gebruik kan word om deure oop te maak, sigarette aan te steek, ens. terwyl die pasiënt nog behoorlik ondersteun word deur die voorarmklem. Hierdie klem is so ontwerp dat dit om die arm sluit in 'n horisontale posisie en die pasiënt kan dus met veiligheid en gemak op die kruk rus.

Vir verdere omskrywings en inligting tree in verbinding met Medical Distributors, Posbus 3378, Johannesburg.

#### INCREMIN-DRUPPELS (LEDERLE)

*Incremin*-druppels (die jongste Lederle-produk wat tot beskikking van Suid-Afrikaanse geneeshere gestel word), is 'n aangename, kersie-geurde vloeistof bevattende die essensiële aminosuur, lisien, plus vitamien B<sub>1</sub>, B<sub>6</sub> en B<sub>12</sub>. Dit word aangedui vir al die talle suigeling, kinders, bejaarde pasiënte en herstellendes wat aan 'n swak eetlus ly.

Albanese *et al.*<sup>1,2</sup> het aangetoon dat eetlus en groei deur lisien verbeter word by suigeling en jong kinders wat nie goed eet of groei nie, en dat dit ook die doeltreffende op-neming van talle proteïene in die vernaamste voedselsoorte, en veral die proteïene in graansoorte en melk, in die hand werk.<sup>3,4</sup>

Bejaarde herstellende pasiënte kon doeltreffender gebruik van proteïene maak nadat lisien by hul dieet gevoeg is.<sup>4</sup> Stare<sup>5</sup> meen ook dat die toevoeging van lisien 'n hoë-graansoort-dieet sal verbeter.

Daar is bo alle twyfel bewys dat vitamien B<sub>1</sub>, B<sub>6</sub> en B<sub>12</sub> belangrik is vir die instandhouding van die behoorlike op-neming en aanwending van voedsel. Deur hierdie B-vitamien met lisien te verenig, het Lederle 'n uiters doeltreffende prikkelmiddel vir die eetlus te voorskyn gebring.

*Incremin*-druppels word verpak in plastiese drukbottels van 15 k.s. Elke bottel het 'n druppelaartuit wat akkurate dosering moontlik maak. Die gewone dosis is 10 druppels (0.5 k.s.) per dag, hoewel dit waarskynlik vermeerder sal moet word tot 20 druppels per dag in die geval van pasiënte wat ernstig siek was. Vir die meeste pasiënte is 'n enkele bottel egter voldoende vir 'n maand se behandeling.

Navrae moet gerig word aan die alleenagente: Alex. Lipworth Ltd., Posbus 4461, Johannesburg.



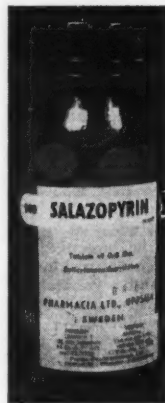
posum oor Geriatriese Geneeskunde, Amerikaanse Geriatriese Vereniging, N.Y., 12 Januarie 1955.

#### SALAZOPYRIN

##### VIR SWERENDE KOLITIS

*Salazopyrin* bevat salisielasulfapiridien. Dit is 'n suur aso-samestelling van salisielsuur en sulfapiridien.

Chemiese samestellings van hierdie aard het 'n spesiale affiniteit vir verbindingsweefsel, en, in teëstelling met die gewone sulfasamestellings, hoop hulle op en vorm depots in die weefsels. *Salazopyrin* word dan gedeeltelik en plaaslik ontbind tot 5-aminosalisielsuur en sulfapiridien. Aangesien daar opvallende veranderinge in die onderepiteel-verbindingsweefsel is in gevalle van swerende kolitis, skyn dit 'n goeie plan te wees om hierdie siekte te behandel met 'n middel wat 'n affiniteit vir hierdie weefsel het.



Die middel is reeds 12 jaar lank in Swede en 'n paar ander Europese lande beskikbaar, en gedurende die afgelope 5 jaar is 'n hele aantal besonder positiewe resultate deur vooraanstaande Amerikaanse gastroenteroloog gerapporteer. In besonder

het Bergen, van die Mayo-kliniek, 'n groot hoeveelheid nuttige inligting oor die waarde van *Salazopyrin* by die behandeling van swerende kolitis bymekaargemaak. Die middel is deur die Amerikaanse Mediese Vereniging aanvaar, en word genoem in *New and Nonofficial Remedies*.

**Toediening en dosis:** Volwassenes. Die normale dosis vir volwassenes is 2 tablette 4-6 maal per dag, aangepas by individuele behoeftes. In gevalle van diarree is dit van belang om 'n groter dosis (10-12 tablette per dag) toe te dien.

Die dosisse word dag en nag toegedien totdat daar 'n verbetering in die aktiewe simptome intree. Daarna word dit slegs gedurende die dag geneem. Dit is van belang om die dosisse op so 'n manier te versprei dat die tussenpose gedurende die nag nie 8 uur oorskry nie. Die preparaat word saam met maaltye geneem.

Bergen beveel kure van twee weke aan, met 'n tussenpose van 'n week tussenin. Die resultate van die behandeling moet deur 'n sigmoidoskoop gekontroleer word, en as die beeld bevredigend word, kan die dosis gewoonlik tot 3 tablette per dag verminder word. As daar enige tekens van agteruitgang is, behoort die dosis onmiddellik vermeerder te word.

**Kinders:** Die normale dosis vir kinders bo 7 is 1-2 tablette 3-6 maal per dag; vir kinders 5-7 jaar, ½-1 tablet 3-6 maal per dag.

**Bykomstige Effekte:** Ernstige bykomstige effekte is 'n seldsame verskynsel, maar af en toe kan 'n hoë toksiese koors met 'n eksantheem binne 7-12 dae verskyn. Die dosis moet dan onmiddellik tot 'n ½-tablet 3 maal per dag vir 'n tydperk van 10-12 dae verminder word, waarna dit dan weer geleidelik

#### VERWYSINGS

1. Albanese, Higgons, Hyde en Orto: *Amer. J. Clin. Nutr.*, **3**, 1955, bl. 121-128.
2. Albanese, Higgons, Hyde en Orto: *N.Y. State J. Med.*, **55**, 1955, bl. 3453-3456.
3. Albanese, Higgons, Hyde en Orto: *Amer. J. Clin. Nutr.*, **4**, 1956, bl. 161-168.
4. Albanese, Higgons, Hyde en Orto: *Mod. Med.*, 15 Mei 1956, bl. 115-118.
5. Stare, F. J.: *Nutrition and the Geriatric Patient: Aangebied op die Gegradeerde Sim-*

vermeerder word. As die koors en die eksanteem nie wyk nie, moet die toediening van die middel 'n paar dae lank gestaak word.

Die bloed en urine moet een maal per week ondersoek word gedurende die eerste 3 weke van die behandeling, en daarna al om die tweede week. Ernstige bloedmoeë is nie waargeneem tydens behandeling met *Salazopyrin* nie, maar 'n neiging tot leukopenie het soms voorgekom. Indien tekens van leukopenie hul verskyning maak, moet die behandeling met hierdie middel dadelik gestaak word.

**Verpakking:** Verkrygbaar in tablette, elk waarvan 0.5 g. bevat. Bottels van 100 en 500.

**Suid-Afrikaanse Verspreiders:** Protea Pharmaceuticals Limited, Posbus 7793, Johannesburg.

#### NULACIN

*Nulacin*-tablette stel u in staat om beheer uit te oefen oor maagsurigheid deur middel van intragastriese melk-alkali-druptherapie, en bied u 'n gerieflike en doeltreffende middel vir die behandeling van peptiese swere en ander oorsurigheidstoestande soos hiatus hernia en ontsteking van die slukderm.

Swere ontstaan nie en maak ook nie weer hul verskyning in die afwesigheid van vrye sout-suur nie, en hul behandeling vereis dus die een of ander neutralisasietoevoeging vir die oorgrootste deel van elke 24 uur.

In 1932 het Winkelstein aangetoon dat ononderbroke neutralisasie (wat tot op daardie stadium onmoontlik was met die ou melk-en-teensuur-dieetvoorskrifte) verkry kon word deur intragastriese melk-alkali-druptherapie deur 'n Ryle-buis. Hierdie behandeling is uit die aard van die saak onmoontlik vir pasiënte wat in staat is om rond te loop, en vir die uiters belangrike voorkoming van nuwe swere.

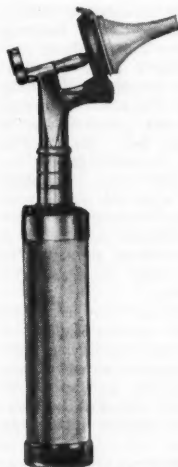
*Nulacin*-tablette is ontwerp om intragastriese melk-alkali-druptherapie tot beskikking van alle pasiënte te stel. Hulle is saamgestel uit vaste melkstowwe en teensure wat op so 'n manier geformuleer is dat as hulle in die kies geplaas word hulle stadig oor 'n tydperk van tussen 20-30 minute oplos en 'n klein bietjie van die melk en die alkalië toelaat om die maag te bereik met elke slukbeweging. In effek kan intragastriese melk-alkali-druptherapie verkry word sonder 'n buis, eenvoudig deur 'n tablet met 'n aangename smaak in die mond te laat oplos.

*Nulacin*-tablette is verkrygbaar in buisies van 25 en hospitaalpakkes van 120.

**Suid-Afrikaanse Verspreiders vir Horlicks Limited, Slough, Bucks.:** B.P.D. South Africa (Pty.) Ltd., Posbus 45, Jeppesstown, Suid-Afrika.

#### SPEKULUMS WAT WEGGEGOOI KAN WORD

Die nuwe Welch Allyn *Kleen-Spec*-spekulums wat weggegooi kan word, is 'n onontbeerlike vereiste



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Afgesien van die feit dat die tydrawende sterilisasieproses uitgeskakel word, is daar nooit enige gevaar van kruisinfectie nie, en nooit 'n ophoping van besoedelde spekulums nie. En die permanente spekulum word teen besoedeling beskerm.

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**Suid-Afrikaanse Verspreiders:** Westdene Products (Pty.) Ltd., Posbus 7710, Johannesburg.

#### PROLADONE

'N PYNVERDOWINGSMIDDEL MET 'N LANGDURIGE EFFEK

**Skeikunde:** Proladone is dihidrohidroksikodeïnoonepektinaat, 'n effens klewerige waterige oplossing, aangebied deur Crookes Laboratories Limited.

**Farmakologie by die Mens:** Met menslike vrywilligers is daar 'n studie gemaak van die urinêre afskeiding van dihidrohidroksikodeïnoon volgende op inspuitings van Proladone en dihidrohidroksikodeïnoon-hydrochloried (Truchaud, 1954). Die alkalioïed het later verskyn en het twee keer so lank aanwesig gebly (11 uur in vergelyking met 5 uur) volgende op die Proladone-inspuiting as op die inspuiting met dihidrohidroksikodeïnoon-hydrochloried. Die helfte van die alkalioïed is afgeskei binne 1 uur ná dihidrohidroksikodeïnoon-hydrochloried, en binne 2½ uur volgende op Proladone. 86.6% van die alkalioïed wat ingespuet is, is teruggevind in die urine volgende op Proladone, waar net 65% teruggevind is na die dihidrohidroksikodeïnoon-hydrochloried-inspuiting. Hierdie bevindings bevestig die langdurige effek van Proladone, en bewys dat dihidrohidroksikodeïnoon in die vorm van die pektinaat heelwat beter weerstand teen vernietiging in die liggaam bied as in die vorm van die hydrochloried.

**Kliniese Ondervinding:** (1) *Beheer van Pyn na 'n Operasie.* In 'n proefneming met 18 pasiënte het Belam (1956) bevind dat ná een inspuiting (10 mg.) Proladone, togiedien voor 'n operasie, geen pasiënt 'n stilmiddel nodig gehad het binne die eerste 14 uur na 'n operasie nie. Slegs een pasiënt van hier-



die reeks het hoegenaamd enige na-operasie-stilmiddel nodig gehad. Hierdie bevindings is bevestig deur 'n verdere proefneming met 100 pasiënte.

Mandel (1954) rapporteer dat 2 of 3 agtereenvolgende nagte vry van pyn en slaaploosheid gevolg het op 'n enkele inspuiting van Proladone (10 mg.) wat toegedien is in die aand aan pasiënte wat 'n ortopediese operasie ondergaan het. By hierdie pasiënte was morfin slegs 'n korstondige en onbevredigende stilmiddel. Sy het bevind dat daar minder verskil was tussen die effek van morfin en dié van Proladone by 'n groep pasiënte wat groot buikoperasies ondergaan het, behalwe in die geval van dié wat vir diafragmaatiese breuke geopereer is. In laasgenoemde geval was die effek van Proladone heelwat beter as dié van morfin.

(2) *Beheer oor die Pyn wat deur Onopereerbare Karsinoom Veroorsaak Word.* Sowel Mandel as Belam het bevind dat Proladone bevredigende verligting van pyn verskaf het in gevalle van onopereerbare karsinoom. Die verligting van pyn in Belam se geval het 6 uur lank geduur. Morfin het verligting van 4 uur by dieselfde pasiënt tot gevolg gehad.

*Bykomstige Effekte:* Mislikheid en braking was 'n uiters seldsame verskynsel volgende op Proladone-inspuitings, behalwe by pasiënte wat 'n inasembare narkose vir histerektomie ontvang het. Hier het die mislikheid en braking geduur toe 'n binne-aarse narkose gebruik is. Baie pasiënte wat mislik was en opgebring het met morfin het etlike Proladone-inspuitings ontvang sonder om mislik te word of

op te bring, en in sommige gevalle het dit geskyn asof die mislikheid deur Proladone verlig is.

Belam rapporteer geen depressie van die asemhaling in sy reeks nie, terwyl Mandel 'n geringe vermindering van die diepte en 'n opvallender vertraging van die tempo van die asemhaling rapporteer.

Proladone het geen bykomstige effekte op die nierfunksie nie.

Twee pasiënte in Mandel se reeks het Proladone per abuis binne-aars ontvang. Die inspuitings het die pasiënte onmiddellik laat slaap, en hul toestand het al die kenmerke van fisiologiese slaap geopenbaar.

*Toediening en Dosisse:* Proladone word in die vorm van 'n binnespiersie inspuiting toegedien. Dit moet nie binne-aars ingespuut word nie.

Die gewone dosis is 1 ml. (10 mg. dihidrohidroksikodeïnoon), en dit kan, indien nodig, herhaal word.

*Verpakking:* Ampulle van 1 ml., in dosies van 6.

*Enigste Suid-Afrikaanse Agente:* South African Druggists (Afdeling Sive Bros. & Karnovsky), Jeppestraat, Johannesburg.

#### VERWYSINGS

Belam, O. H. (1956): *Lancet*.

Mandel, C. (1954): *Verlag van l'Institut d'Anesthesiologie*, Parys.

Truchaud, M. (1954): *Anesthésie et Analgésie*, 11, 650.

## REVIEWS OF BOOKS

### DISEASE IN INFANCY AND CHILDHOOD

*Disease in Infancy and Childhood.* By Richard W. B. Ellis, O.B.E., M.A., M.D., F.R.C.P. 2nd ed., 1956. (Pp. 710 + vii. With 333 illustrations. 50s.). Edinburgh: E. & S. Livingstone Ltd.

In this relatively compact and beautifully printed volume the author has succeeded in presenting a most comprehensive introduction to clinical paediatrics.

His aim has been to emphasize and distinguish the child's response to disease processes in contrast to that shown by adults.

This book includes accounts of rare conditions as well as the common disorders. The chapters on the newborn infant and congenital malformations are particularly worthy of mention.

The review of present-day therapy, with particular emphasis on the numerous antibiotics available to-day, is very useful.

Professor Ellis is to be congratulated on this most practical contribution to paediatric literature, with its outstanding illustrations and radiographs.

### TEACHING OF PUBLIC HEALTH

*The Teaching of Hygiene and Public Health in Europe.* By F. Grundy & J. M. Mackintosh, Geneva, 1957. *World Health Organization: Monograph Series*, No. 34, 254 pages. £1 5s. Pretoria: van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724.

'Medical training institutions, like all others, must improve and adapt themselves to the continual advances in both medicine and social welfare,

advances which have been particularly remarkable during the last half-century.' With these words, Prof. Jacques Parisot, in his introduction to the *Teaching of Hygiene and Public Health in Europe*, gives the broad terms of reference for this monograph. Its authors, Profs. F. Grundy and J. M. Mackintosh, have drawn freely on the material furnished by two WHO conferences, which brought into prominence the changes that have come about in undergraduate and post-graduate training in hygiene and preventive medicine. To make this study as internationally significant as possible, it was submitted in manuscript to leading public health educators in 8 countries representative of different patterns of medical education.

A historical review shows how the teaching of hygiene and preventive medicine has developed against a background of progress in the sciences basic to public health, and the rise of public health as a medical career.

The authors then take up the main themes of their study, viz. undergraduate education in hygiene and preventive and social medicine, and post-graduate education in public health. The first of these is dealt with in 6 chapters covering such aspects as the form and content of the undergraduate curriculum; teaching methods and procedures; intra- and extra-mural collaboration; organization of the department of social medicine, etc.

Post-graduate education in public health is also extensively discussed. The authors describe the principles of post-graduate teaching and examine the structure and scope of the curriculum. This leads to a definition of the precise functions of the health officer and to a description of various types of European public health practice.



The monograph concludes with an analysis of information on the teaching of social medicine, public health and hygiene in the medical schools and institutes of 19 European countries. For the first time the essential facts have been gathered together and presented in an easily digested form.

Two annexures are devoted to the findings of the WHO Study Conferences on Undergraduate and Post-Graduate Training which provided the basic information for this study.

#### REPORT ON RABIES

*Expert Committee on Rabies. Third Report. World Health Organization Technical Report Series, 1957, No. 121. 31 pp. 1s. 9d. Pretoria: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724.*

The third session of the Committee was devoted to the consideration of advances made in rabies during the last 3 years. The results of experimental studies on persons exposed to the infection and, in particular, a field trial carried out in Iran, led to certain conclusions concerning the efficacy of antirabies serum and vaccine. Complications following the administration of serum and nervous tissue vaccine receive attention.

Recommendations for the post-exposure treatment of Man, also based on experimental data, are discussed. The importance of local treatment of wounds is emphasized. It is of interest to note, in this connexion, that the infiltration of antirabies serum into the tissue beneath the wound is effective in the prevention of rabies in experimental animals.

Experimental investigations on the immunization of animals (cats and dogs) are discussed. The report contains a summary of the Committee's recommendations for the control of rabies in animals, with special reference to vaccines. The measures to be applied to dogs and cats imported from countries where rabies is known to exist have been slightly modified since the last session.

The importance of rabies control in wild life is emphasized, the recent isolation of the rabies virus from insectivorous bats being of special interest in this connexion. Although there is no direct evidence of natural transmission of rabies from insectivorous bats to Man or lower animals, the public health significance of these findings must not be overlooked, as there have been many instances in which proven rabid bats have bitten human beings.

Finally, the Committee recommends that potency tests for vaccines should be more standardized and underlines the necessity of performing some test for potency on each batch of vaccine. Such tests would make it possible to ascertain the presence and duration of antigenicity and would help determine the stability of the vaccine. Field trial of antirabies serum in Man severely exposed to the disease and an analysis of the serum employed has enabled a recommendation on the acceptable potency and therapeutic dosage of the serum.

A suggested veterinary certificate of health and rabies vaccination for dogs and cats for use in international traffic, is annexed to the report, as well as a suggested case record for human rabies exposure.

#### CORRESPONDENCE

##### THE R<sub>x</sub> MODEL BAUMANOMETER

*To the Editor:* We would like it to be known that the W. A. Baum Co. (makers of blood pressure apparatus exclusively) are making available to the profession (in response to a substantial number of requests for a reliable blood pressure machine) a Baumanometer for the patient's use under the doctor's supervision.

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The duties will include routine duties in clinical pathology in the Hospital Laboratory, and teaching duties in the Department of Pathology.

The main teaching duties of the successful applicant will be to undertake teaching in General Pathology and in Haematology to Third Year undergraduate students, and teaching in Clinical Pathology to Fourth, Fifth and Sixth Year undergraduate students.

Applicants should state their academic qualifications and professional experience with special reference to their experience in the various branches of Pathology, and they should state whether they are registered as Specialist Pathologists with the South African Medical and Dental Council.

The successful candidate will be required to assume duty on 1 August 1957, or as soon as possible thereafter.

The prescribed application form and further particulars may be obtained from the Registrar, University of Natal, King George V Avenue, Durban, with whom applications must be lodged not later than 30 June 1957. [Advertisement]

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7. The successful candidate must undertake to return to South Africa for a period of at least 1 year after the termination of the award.

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Selection Committee,

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I. Peele, J.C.: A.M.A. Arch. Otolaryng. 67:450 (April, 1955).

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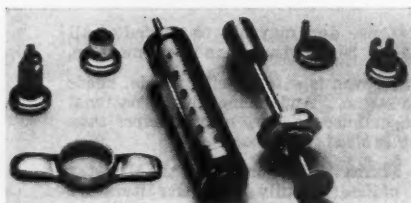
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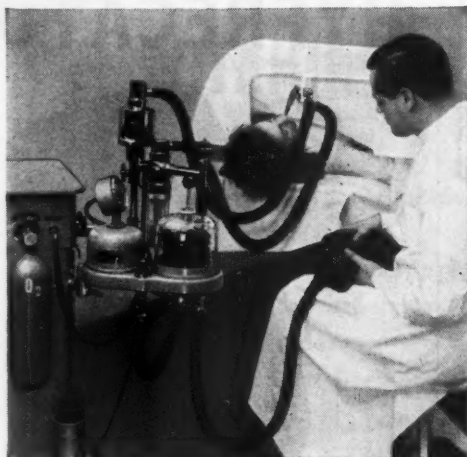


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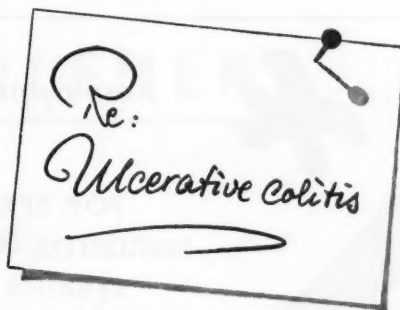
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1. BARGEN, J. A.: "Present Status of Hormonal and Drug Therapy of Ulcerative Colitis", South. M. J. 48: 192 (Feb.) 1955.
2. BARGEN, J. A. and KENNEDY, R. L. J.: "Chronic Ulcerative Colitis in Children", Postgrad. Med. 17: 127 (Feb.) 1955.
3. MORRISON, L. M.: "Response of Ulcerative Colitis to Therapy with Salicylazosulfapyridine", J. A. M. A. 151: 366 (Jan. 31) 1955.

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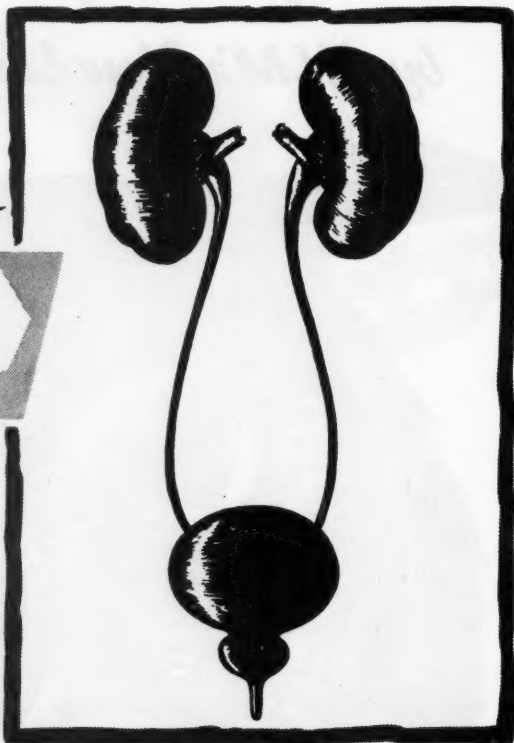
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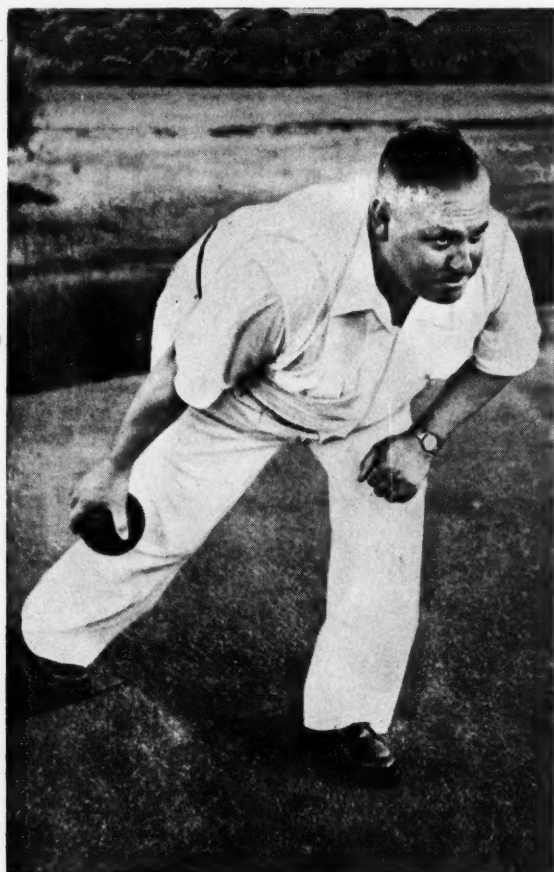
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